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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,287	03/01/2002	Peter G. Borden	BOX014 US	6609

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EXAMINER

VERBITSKY, GAIL KAPLAN

ART UNIT PAPER NUMBER

2859

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/090,287

Applicant(s)

BORDEN ET AL.

Examiner

Gail Verbitsky

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-25, 27-30 and 32-34 is/are allowed.
- 6) ☒ Claim(s) 1-21, 26, 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 26, 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In this case,

Claim 1: the claim language is confusing because, the preamble of the claim is directed to "identifying a defect", while the body of the claim is directed to "determining absence of the defect". Perhaps applicant should insert –presence or absence of—after "identifying" in line 1.

Claim 26: the claim language is confusing because it is not clear how the limitations (i.e., moving stage, etc.) of claim 26 further limit claim 22 which claim 26 is dependent on.

Claim 31: the claim language is confusing because it is not clear how the limitations (i.e., spatial frequency) of claim 31 further limit claim 1 which claim 31 is dependent on.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Smith in view of Shakouri et al. (U.S. 20020126732) [hereinafter Shakouri].

Smith discloses in Figs. 1-4 a device and the method in the field of applicant's endeavor for testing an integrity (defect, flaw, quality, irregular features) of a semiconductor wafer with a first conductive structure/ layer/ portion (metal lines and plurality of vias, thus, inherently periodic in space along a direction A). The device comprises a modulated laser pump (pump beam, electron beam) 44 incident to a surface of the metal lines to evaluate vias. Smith also discloses another laser beam (probe beam) 60, a reflected probe beam is received by a thermal detector 74. The reflection of the probe beam is used to obtain measured results and to compare them to a known wafer pattern (reference wafer/ second conductive structure) results stored in memory. (the numeral A has been added by the Examiner, see attachment to the Office action).

Smith does not disclose that the measuring results is measuring the phase difference, as stated in claim 18, in a combination with the remaining limitations of claims 18-21.

Shakouri discloses the device and the method in the field of applicant endeavor, wherein a phase difference between an excitation beam (pump beam/ heat source) and a probe (probe beam/ temperature change) is used (inherently measured) to determine

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a thermal wave propagation through a sample, and thus, inherently, the quality (defect, voids) of the sample.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Smith, so as to measure a phase difference between an excitation beam and a probe, in order to use it to determine a thermal wave propagation through the sample and thus, to determine the sample's quality, as taught by Shakouri.

The method steps will be met during the normal operation of the device stated above.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Allowable Subject Matter

6. Claims 2-6, 8-17, 26, 31 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

7. Claims 22-25, 27-30 and 32-34 are allowed.

Response to Arguments

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8. Applicant's arguments with respect to claims 1, 18-21, 26, 31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Verbitsky who can be reached at (703) 306-5473 Monday through Friday 7:30 to 4:00 ET.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-5473.

GKV


Gail Verbitsky, Patent Examiner,
TC 2800

05 September 2003

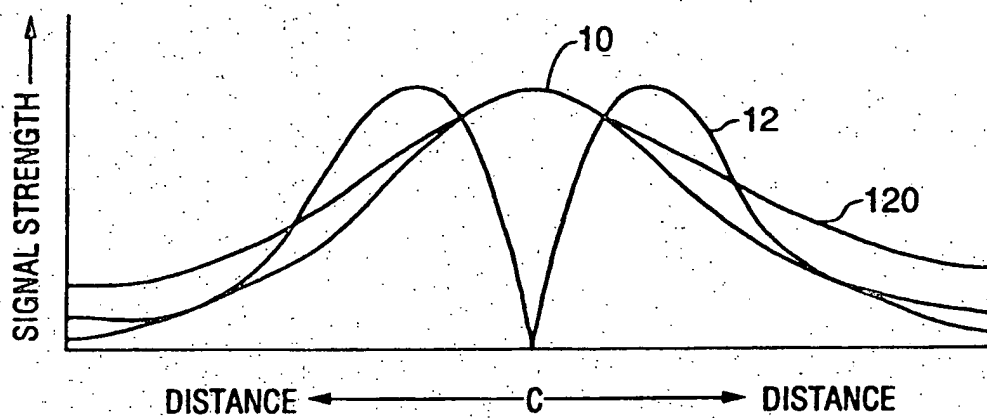


FIG. 1

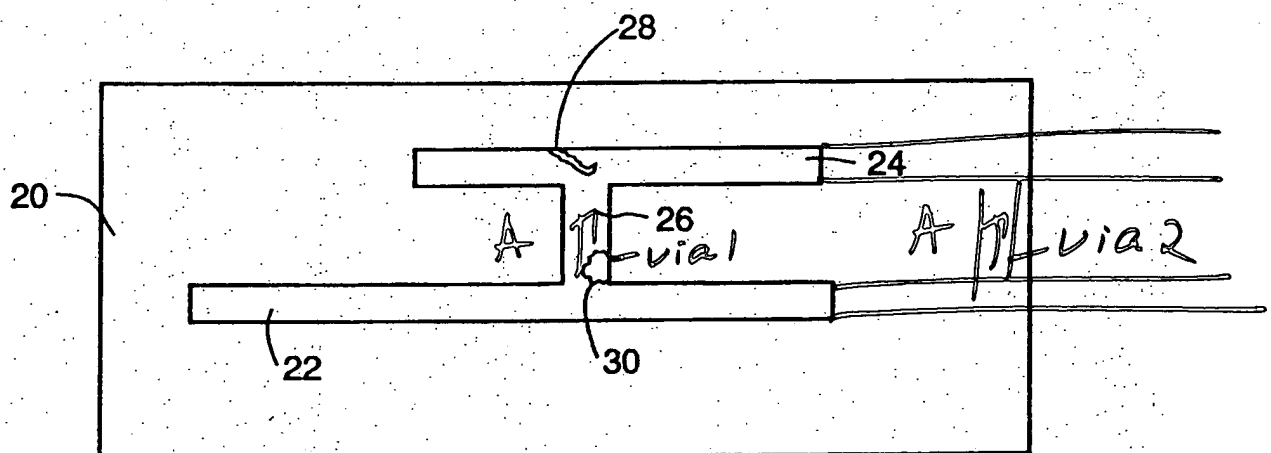


FIG. 2

Attachment